

HISTORY OF MATHEMATICS IN AFRICA

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*United States International University-Africa, Kenya***Book title: History of Mathematics in Africa, Volume 1 & 2****Authors: Paulus Gerdes & Ahmed Djebbar****Publisher: AMUCHNA****Year: 2011****ISBN: 978-1-105-11807-4****The Review**

The etymology of the term *mathematics* (mathematikos) points to two Greek words, *mathema* and *manthanein*, indexing *a science* and *to learn* respectively. Subsequently, mathematics has been defined as the *study of the measurement, properties, and relationships of quantities and sets, using numbers and symbols* (Collins). More broadly, mathematics is the study or use of numbers and shapes to calculate, represent or describe things (Oxford). Distilling from the definitions above is the incontrovertible argument that mathematics is essential to reasoning.

Reasoning is critical to the advancement of any society. Underwood Dudley in a paper entitled "What is mathematics for?" argues that society cannot do without mathematics. He further notes that mathematics is the best way to learn how to reason, and that is its purpose, not to find jobs. Little wonder then the WeUSEMath.org concludes that math leads to purpose, opportunities and success.

The noble arguments notwithstanding, mathematics remains a nightmare to many and a source of frustration and utter dismay. Further, mathematics stands in the way of many students' academic and professional advancement that have come to view it as a necessary evil. To move to higher levels of education, one must overcome the hurdle of mathematics, alongside English, in the case of former British colonies. This is akin to double jeopardy. Nonetheless, it can be argued also that the reason behind the mathematics terror, because terror it is, is poor teaching (such as rote learning of formulae), poor link between math and reasoning, which makes math look irrelevant to our daily lives. To many, mathematics is for the super-smart people, who are predisposed for scientific careers or computer engineering, not for ordinary mortals. This is the myth debunked expertly in a magna opus of two volumes dedicated to the *History of Mathematics in Africa*.

The authors, Paulus Gerdes and Ahmed Djebbar, regale the reader with evidence of mathematics in ancient and modern Africa; an observation that runs counter to the received idea that mathematics is a preserve of the West or western civilization. George Gherghese Joseph in his book *The crest of the peacock: Non-European roots of*

mathematics intimates that mathematics “should be defined as any activity that arises out of, or directly generates, concepts relating to numbers or spatial configurations together with some form of logic.” Reasoning again. Central Equatorial Africa presents the earliest evidence of a numerical recording in the form of the Ishango bone dating to circa 35,000 BC. Africa, therefore, can be construed as a serious contender in the history of mathematics, and reasoning, contrary to Sedar Senghor’s assertion that “reasoning is Cartesian, and rhythm is African”.

The two volumes make a solid case for promoting mathematics education and provide simple albeit startling evidence of mathematics in ancient and modern African civilizations. Examples of mathematics include, inter alia, traditional basket-weaving patterns in Mozambique, drawings in Egypt, Arabic art and architecture, sand-graphs and sona in Angola, etc. Other examples include numeration systems in various African languages, riddles and children games that are laden with mathematics (for instance, the study of probabilities with cowrie games). Why do traditional objects such as baskets, mats, pots, houses, and fish traps have the form they have? Further, there is a strong nexus between African art and mathematics since as Njock from the University of Yaoundé, Cameroon observes “Pure mathematics is the art of creating and imaging. In this sense black art is mathematics.” In this paradigm, it’s argued in the publication that African children could benefit immensely from examples drawn from their cultural contexts to enjoy learning mathematics. In such an initiative mathematics will cease being conceptualized as a foreign subject, rather it will be understood as a relevant everyday science that is already in use by African people. This is the case for ethnomathematics, studying our cultural environment to extract the mathematical knowledge locked in.

The opus marks another first by claiming that women were the first mathematicians in view of the lunar markings on the Ishango bone that could signify menstrual calculations. The traditional activities of basket-weaving, house-roofing, mat making, fabric decorations remain squarely in the feminine domain in African societies. This means that contrary to the belief that mathematics is not for women, cultural evidence on the ground confirm the very opposite: women are the heart of mathematics, and attendant reasoning.

To sum it all, Joseph aptly notes that “like the crest of a peacock, like the gem on the head of a snake, so is mathematics at the head of all knowledge”. In a similar hyperbolic note, Dudley would rather say that “mathematics is the most glorious creation of the human intellect”.

The two volumes make a great read for linguists, anthropologists, historians, and aficionados of mathematics.